

## CLAIMS

1. A processor-readable medium comprising processor-executable instructions for processing a PDF document to produce a PPML template, the processor-executable instructions comprising instructions for:

- 5           opening the PDF document;  
              converting a PDF element within the PDF document into a variable object;  
              selecting a macro containing rules governing operation of the variable object; and  
10           configuring the PPML template to include a definition of the variable object, the macro and a version of the PDF document, wherein the version of the PDF document is configured as a background element within the PPML template.

- 15           2. A processor-readable medium as recited in claim 1, wherein converting the PDF element within the PDF document into the variable object comprises further instructions for:  
              providing a tool for operation by a user; and  
              responding to operations of the tool which result in a selection of a  
20           portion of the PDF document to be associated with the variable object.

3. A processor-readable medium as recited in claim 2, wherein the selection of the portion of the PDF document comprises further instructions for:  
25           selecting a graphical image within the PDF document.

4. A processor-readable medium as recited in claim 2, wherein the selection of the portion of the PDF document comprises further instructions for:

selecting text within the PDF document.

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5. A processor-readable medium as recited in claim 2, wherein responding to operation of the tool comprises further instructions for:

providing the user with a first set of properties for graphical objects and a second set of properties for text objects;

10 allowing the user to adjust the properties; and

governing conversion of the PDF element within the PDF document into the variable object according to the properties.

6. A processor-readable medium as recited in claim 1, wherein  
15 selecting the macro comprises further instructions for:

configuring the macro as an XML file containing macros described by an XSL schema.

7. A processor-readable medium as recited in claim 1, wherein  
20 selecting the macro comprises further instructions for:

configuring an external XSLT macro file to contain the rules governing the operation of the variable object.

8. A processor-readable medium as recited in claim 1, wherein selecting the macro comprises further instructions for configuring the macro file to:

- regulate text scaling within the variable object;
- 5 regulate text wrapping within the variable object;
- regulate image scaling within the variable object; or
- regulate image cropping within the variable object.

9. A processor-readable medium as recited in claim 1, comprising  
10 further instructions for:

modifying the PDF document to include marking elements to link the variable object with the macro.

10. A processor-readable medium as recited in claim 1, comprising  
15 further instructions for:

referencing the PDF document as a background PPML asset from within the PPML template;

listing, within the PPML template, fonts required within the PPML template;

20 configuring the PPML template to include at least one macro; and

defining the variable object as REUSABLE within the PPML template to allow reuse of the variable object when references indicating such use appear.

11. A processor-readable medium as recited in claim 1, comprising further instructions for:

saving the PPML template as an optimized tree-structure; and

5 using a PPML to PDF converter to produce an optimized PDF document from the PPML template wherein subsequent instances of a PDF object will be substituted with references to an initial instance of the PDF object.

12. A processor-readable medium as recited in claim 1, comprising further instructions for:

10 presenting a user with a choice between .pplm and .ppmlt as an extension for addition to a file name; and

saving a PPML document resulting from the PDF document under the file name with the extension.

15 13. A processor-readable medium comprising processor-executable instructions for processing an initial PDF document to produce a PPML template, the processor-executable instructions comprising instructions for:

marking a copy of the initial PDF document to indicate variable objects, thereby forming a marked PDF document;

20 forming the PPML template to include the variable objects and to include at least portions of the initial PDF document as a background; and

configuring macros to govern use of the variable objects.

14. A processor-readable medium as recited in claim 13, wherein marking the copy of the initial PDF document comprises further instructions for:

- 5 selecting text or an image, with a selection tool, to form the variable object;
- moving the variable object within the PDF document with a movement tool; and
- resizing the variable object with a resizing tool.

10 15. A processor-readable medium as recited in claim 13, comprising further instructions for:

importing the macros from external files to govern operation of the variable objects, wherein the macros are defined using XSLT rules.

15 16. A processor-readable medium as recited in claim 15, wherein importing the macros comprises further instructions for:

- regulating text scaling within the variable objects;
- regulating text wrapping within the variable objects;
- regulating image scaling within the variable objects; or
- 20 regulating image cropping within the variable objects.

17. A system, comprising:

a variable object creation tool to select objects within a PDF document for designation as variable objects within a PPML template;

5 a macro selection tool to allow a user to select rules governing use of the variable objects; and

a PPML template generator to assemble the variable objects within the PPML template and to configure at least portions of the PDF document as a background within the PPML template and to assemble the selected rules as a macro.

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18. The system of claim 17, wherein the variable object creation tool is configured to select text within the PDF document.

19. The system of claim 17, wherein the variable object creation tool  
15 is configured to select a graphical image within the PDF document.

20. The system of claim 17, additionally comprising:

a user interface configured to provide the user with a first set of properties wherein the selected objects include graphical objects and a second  
20 set of properties wherein the selected objects includes text objects, to allow the user to adjust the first and second sets properties, which are configured to govern operation of the variable objects within the PPML template.

21. The system of claim 20, wherein the first and second set of properties include:

- regulating text scaling within the variable objects;
- regulating text wrapping within the variable objects;
- 5 regulating image scaling within the variable objects; or
- regulating image cropping within the variable objects.

22. The system of claim 17, wherein the macro is configured as an XSLT file.

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23. The system of claim 17, wherein the macro is configured as an XML file containing macros described by an XSL schema.

24. The system of claim 17, comprising:

- 15 a PPML to PDF converter to produce an optimized PDF document from a PPML document derived from the PPML template wherein subsequent instances of a PDF object will be substituted with references to an initial instance of the PDF object.

25. A system, comprising:  
means for opening a PDF document;  
means for converting a PDF object within the PDF document into a  
variable object;  
5 means for generating a macro to contain rules governing use of the  
variable object; and  
means for configuring a PPML template to include the variable object,  
the macro and at least portions of the PDF document, wherein the at least  
portions of the PDF document is configured as a background within the PPML  
10 template.

26. The system as recited in claim 25, wherein the means for  
converting the PDF object within the PDF document into the variable object  
comprises:

15 a variable object creation tool configured for operation by a user,  
wherein operation of the variable object creation tool allows the user to select  
the PDF object.

27. The system as recited in claim 26, wherein the variable object  
20 creation tool is configured for selecting a graphical image within the PDF  
document.

28. The system as recited in claim 26, wherein the variable object  
creation tool is configured for selecting text within the PDF document.

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29. The system as recited in claim 26, wherein the variable object creation tool comprises:

a graphical user interface to provide the user with a first set of properties for graphical objects and a second set of properties for text objects;

5 wherein the graphical user interface allows the user to adjust the properties; and

wherein the graphical user interface governs conversion of the PDF object within the PDF document into the variable object according to the properties.

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30. The system as recited in claim 25, wherein the means for generating the macro configures the macro as an XML file containing macros described by an XSL schema.

15 31. The system as recited in claim 25, wherein the means for generating the macro configures an external XSLT macro file to contain the rules governing the use of the variable object.

20 32. The system as recited in claim 25, wherein the means for generating the macro to contain rules governing use of the variable object creates rules comprising:

rules for regulating text scaling within the variable object;

rules for regulating text wrapping within the variable object;

rules for regulating image scaling within the variable object; and

25 rules for regulating image cropping within the variable object.

33. The system as recited in claim 25, additionally comprising:  
means for modifying the PDF document to include marking objects to  
link the variable object with the macro.

5 34. The system as recited in claim 25, further comprising:  
means for referencing the PDF document as a background PPML asset  
from within the PPML template;  
means for listing, within the PPML template, fonts required within the  
PPML template;  
10 means for configuring the template to include at least one macro file  
used by the template; and  
means for defining the variable object as REUSABLE within the PPML  
document to allow reuse of the variable object when references indicating such  
use appear.

15 35. The system as recited in claim 25, additionally comprising:  
means for saving the PPML template as an optimized tree-structure; and  
means for producing an optimized PDF document from the PPML  
document wherein subsequent instances of a PDF object will be substituted  
20 with references to an initial instance of the PDF object.

36. A method for processing a PDF document for transmission to a printer accepting PPML print jobs, comprising:

marking a PDF object within the PDF document and converting the marked object into a variable object;

5 associating a macro containing operation-governing rules with the variable object; and

configuring a PPML template to include a definition of the variable object, the macro and a version of the PDF document, wherein the version of the PDF document is configured as a background element within the PPML  
10 template.

37. The method of claim 36, additionally comprising:

merging the PPML template with data, thereby creating a PPML document; and

15 printing the PPML document using a digital press.

38. The method of claim 36, additionally comprising:

providing a tool for operation by a user; and

responding to operations of the tool which result in a selection of a  
20 portion of the PDF document to be associated with the variable object.